

## CLAIMS:

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1. An X-ray unit for generating imagings of a body, comprising
- a) an X-ray source (7);
- b) an automatically adjustable collimator (6) for limiting, locally attenuating and/or filtering an X-ray beam;
- 10 c) an X-ray detector (4);
- d) a data processing unit (2) that is coupled to the collimator (6) and the X-ray detector (4) and that is designed to localize a region of interest (9) inside the body on at least a first X-ray picture of the body transmitted by the X-ray detector (4) and to adjust the collimator (6) such that the subsequent X-ray pictures are concentrated on the region (9) of
- 15 interest.
2. An X-ray unit as claimed in claim 1, characterized in that the irradiation field of the collimator (6) adjusted on the region (9) of interest is defined by an organ or part (10) of an organ.
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3. An X-ray unit as claimed in claim 1, characterized in that the region of interest (9) covers the possible positions of a body structure (10) during a periodic movement of the body.
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4. An X-ray unit as claimed in claim 3, characterized in that the data processing unit (2) is designed to determine the region of interest (9) on the basis of a plurality of first X-ray pictures from different phases of the periodic movement of the body (5).
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5. An X-ray unit as claimed in claim 1, characterized in that the first X-ray pictures display a contrast agent inside a vessel system and the data processing unit (2) is designed to determine the course of the vessels from the detection of the contrast agent on the first X-ray pictures.

6. An X-ray unit as claimed in claim 1, characterized in that it comprises means for detecting a movement of the region of interest (9) of the body, and in that the data processing unit (2) is designed to readjust the adjustment of the collimator (6) such that the concentration on the region of interest (9) remains intact.

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7. An X-ray unit as claimed in claim 6, characterized in that the data processing unit (2) is designed to estimate the movement of the region (9) of interest from an image analysis of the subsequent X-ray pictures.

10 8. An X-ray unit as claimed in claim 1, characterized in that the data processing unit (2) is designed to move the collimator (6) to a specified standard adjustment if the region (9) of interest cannot be localized or cannot be localized any longer with adequate certainty.

15 9. An X-ray unit as claimed in claim 1, characterized in that it is designed to undertake a three-dimensional localization of the region of interest from the first X-ray pictures, and in that the data processing unit (2) is furthermore designed to readjust the collimator (6) in the event of an alteration in the recording direction while the subsequent X-ray pictures are being taken.

20 10. A method of generating X-ray pictures of a body, comprising the steps of:  
a) generating at least a first X-ray picture of the body;  
b) localization of a region (9) of interest inside the body on the first X-ray picture;  
c) automatic adjustment of a collimator (6) such that the subsequent X-ray  
25 pictures are concentrated on the region (9) of interest.